Estimates of the summary AUC under three settings of (c_1, c_2)

$(\tau_1^2, \tau_2^2) = (1, 4)$

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2022-01-21

Table 1: Summary of the SAUC estimates under the true selective publication mechanism of $(c_1, c_2) = (1/\sqrt{2}, 1/\sqrt{2})$

			$S = 15$	$S = 25$	$S = 50$	$S = 200$
No.	Methods	True	Median (Q1, Q3)	Median (Q1, Q3)	Median (Q1, Q3)	Median (Q1, Q3)
1	Proposed $(\hat{c}_1, \hat{c}_2)$	56.4	4.4 (47.4, 70.6)	2.8 (49.6, 67.1)	0.8 (49.2, 63.7)	-0.7 (51.5, 59.8)
	Proposed $(c_1 = c_2)$		3.5 (48.4, 69.6)	3.0 (51.0, 67.2)	1.7 (51.9, 64.0)	0.2 (53.0, 59.6)
	Proposed $(c_1 = 0)$		9.3 (55.6, 73.5)	9.5 (59.1, 71.8)	9.8 (61.5, 70.1)	9.9 (64.2, 68.6)
	Heckman-type		8.7 (56.0, 72.8)	9.2 (58.3, 71.3)	8.6 (59.8, 69.1)	8.2 (61.9, 66.6)
	Reistma$_O$		11.1 (57.8, 74.6)	11.3 (61.8, 73.0)	10.8 (63.0, 71.1)	10.5 (64.8, 69.0)
	Reistma$_P$		0.3 (49.5, 63.4)	0.1 (51.3, 60.7)	-0.1 (52.9, 59.6)	-0.1 (54.6, 58.1)
2	Proposed $(\hat{c}_1, \hat{c}_2)$	62.0	2.7 (54.7, 72.7)	0.9 (54.8, 69.8)	0.0 (55.7, 67.2)	-0.4 (58.0, 64.7)
	Proposed $(c_1 = c_2)$		2.5 (55.4, 72.3)	1.3 (56.0, 69.9)	1.2 (58.1, 68.2)	0.1 (59.5, 64.8)
	Proposed $(c_1 = 0)$		7.1 (61.2, 75.0)	6.8 (64.1, 73.3)	7.5 (65.5, 72.1)	7.5 (67.7, 70.8)
	Heckman-type		5.7 (59.7, 74.0)	5.5 (62.1, 71.8)	5.3 (63.4, 71.0)	5.2 (65.2, 69.0)
	Reistma$_O$		7.9 (62.9, 75.7)	7.5 (65.2, 73.5)	8.0 (66.5, 72.7)	7.7 (68.1, 71.2)
	Reistma$_P$		0.5 (56.9, 67.3)	-0.1 (57.4, 65.5)	0.1 (59.2, 64.6)	0.0 (60.7, 63.2)
3	Proposed $(\hat{c}_1, \hat{c}_2)$	82.8	2.2 (79.2, 88.6)	1.2 (78.9, 87.3)	0.8 (79.9, 86.2)	0.2 (81.3, 84.6)
	Proposed $(c_1 = c_2)$		1.6 (78.7, 88.1)	0.8 (78.7, 87.0)	0.7 (80.3, 86.0)	0.1 (81.3, 84.5)
	Proposed $(c_1 = 0)$		2.9 (80.4, 89.0)	2.9 (81.5, 88.2)	3.0 (83.4, 87.7)	3.5 (85.1, 87.4)
	Heckman-type		3.3 (82.0, 89.2)	3.2 (82.9, 88.3)	3.8 (84.4, 88.1)	3.6 (85.5, 87.3)
	Reistma$_O$		4.2 (83.3, 89.8)	4.1 (83.9, 89.2)	4.4 (85.3, 88.7)	4.4 (86.4, 88.0)
	Reistma$_P$		-0.2 (78.5, 85.5)	-0.2 (79.9, 85.0)	-0.0 (81.0, 84.4)	0.0 (81.9, 83.7)
4	Proposed $(\hat{c}_1, \hat{c}_2)$	84.6	1.2 (82.2, 88.6)	0.7 (82.4, 87.7)	0.4 (82.6, 86.9)	0.1 (83.6, 85.8)
	Proposed $(c_1 = c_2)$		0.7 (81.7, 88.6)	0.6 (82.3, 87.5)	0.5 (82.9, 87.0)	0.1 (83.7, 85.8)
	Proposed $(c_1 = 0)$		1.8 (83.6, 89.2)	1.8 (84.0, 88.4)	2.2 (84.9, 88.1)	2.3 (86.3, 87.8)
	Heckman-type		1.9 (83.6, 89.0)	1.9 (84.5, 88.4)	2.1 (85.2, 88.1)	2.1 (85.9, 87.4)
	Reistma$_O$		2.7 (84.6, 89.8)	2.8 (85.5, 89.1)	2.9 (86.2, 88.8)	2.9 (86.9, 88.1)
	Reistma$_P$		-0.1 (82.0, 86.8)	-0.1 (82.4, 86.5)	0.0 (83.2, 85.8)	0.0 (84.0, 85.2)
5	Proposed $(\hat{c}_1, \hat{c}_2)$	89.2	-0.3 (85.9, 91.4)	0.1 (87.2, 91.2)	-0.0 (87.6, 90.6)	0.0 (88.4, 89.9)
	Proposed $(c_1 = c_2)$		-0.4 (86.1, 91.3)	0.3 (87.4, 91.3)	0.2 (87.8, 90.6)	0.0 (88.5, 89.9)
	Proposed $(c_1 = 0)$		-0.8 (85.1, 91.2)	-0.3 (86.2, 91.1)	0.2 (87.6, 90.8)	0.6 (88.7, 90.6)
	Heckman-type		0.2 (86.5, 91.6)	0.6 (87.8, 91.6)	0.6 (88.4, 91.0)	0.8 (89.3, 90.6)
	Reistma$_O$		0.9 (87.6, 92.1)	1.5 (88.9, 92.1)	1.5 (89.6, 91.7)	1.6 (90.3, 91.3)
	Reistma$_P$		-0.4 (86.4, 90.9)	-0.1 (87.4, 90.7)	-0.1 (87.9, 90.2)	-0.0 (88.6, 89.7)
6	Proposed $(\hat{c}_1, \hat{c}_2)$	87.7	-0.2 (84.4, 90.1)	-0.0 (85.4, 89.5)	-0.0 (86.1, 89.1)	0.0 (87.0, 88.5)
	Proposed $(c_1 = c_2)$		-0.1 (84.9, 90.2)	0.2 (85.9, 89.7)	0.2 (86.5, 89.3)	0.0 (87.1, 88.5)
	Proposed $(c_1 = 0)$		-0.6 (83.8, 89.9)	-0.1 (85.2, 89.4)	-0.1 (85.9, 89.2)	0.3 (87.1, 88.9)
	Heckman-type		-0.1 (85.0, 90.0)	0.3 (86.0, 89.7)	0.2 (86.7, 89.2)	0.3 (87.3, 88.7)
	Reistma$_O$		0.7 (85.8, 90.8)	1.2 (87.3, 90.5)	1.3 (87.9, 90.1)	1.3 (88.5, 89.6)
	Reistma$_P$		-0.2 (85.0, 89.7)	-0.2 (85.9, 89.3)	-0.1 (86.5, 88.8)	-0.1 (87.1, 88.3)

Median with 25th empirical quartile (Q1) and 75th empirical quartile (Q3) and convergence rate (CR) are reported. No. corresponds to the scenario number. S denotes the number of the population studies. True denotes the the true value of the SAUC. Proposed $(hatc_1, hatc_2)$, Proposed $(c_1 = c_2)$, and Proposed $(c_1 = 1)$ denote the proposed method that estimates (c_1, c_2), correctly specifies $(c_1, c_2) = (1/sqrt2, 1/sqrt2)$, and misspecifies $(c_1, c_2) = (1, 0)$, respectively; Heckman-type denotes the method of Piao et al.; Reitsma$_O$ and Reitsma$_P$ denote the Reitsma model based on N published studies and S population studies, respectively. All the entries are multiplied by 100.

Table 2: Summary of the SAUC estimates under the true selective publication mechanism of $(c_1, c_2) = (1, 0)$

			$S = 15$	$S = 25$	$S = 50$	$S = 200$
No.		True	Median (Q1, Q3)	Median (Q1, Q3)	Median (Q1, Q3)	Median (Q1, Q3)
1	Proposed $(\hat{c}_1, \hat{c}_2)$	56.4	3.8 (51.7, 67.4)	3.5 (52.0, 65.7)	0.4 (51.3, 63.0)	-0.2 (53.3, 58.6)
	Proposed $(c_1 = 1)$		3.5 (51.3, 67.8)	2.7 (51.9, 65.3)	1.0 (52.1, 62.3)	0.1 (53.9, 58.9)
	Proposed $(c_1 = c_2)$		5.6 (55.0, 68.4)	6.3 (57.1, 67.1)	6.4 (59.1, 66.3)	7.7 (62.1, 65.8)
	Heckman-type		5.2 (55.1, 68.3)	5.8 (56.4, 66.6)	5.5 (58.1, 65.1)	5.2 (59.5, 63.2)
	Reistma$_O$		8.3 (58.8, 70.8)	8.8 (60.1, 69.3)	8.8 (61.7, 68.2)	8.6 (63.3, 66.4)
	Reistma$_P$		0.3 (49.5, 63.4)	0.1 (51.3, 60.7)	-0.1 (52.9, 59.6)	-0.1 (54.6, 58.1)
2	Proposed $(\hat{c}_1, \hat{c}_2)$	62.0	2.0 (56.8, 69.9)	1.1 (57.4, 68.0)	0.2 (57.6, 66.2)	-0.0 (59.8, 64.0)
	Proposed $(c_1 = 1)$		2.2 (56.9, 70.0)	1.2 (57.9, 67.9)	0.8 (58.6, 66.1)	0.1 (60.1, 63.9)
	Proposed $(c_1 = c_2)$		3.0 (58.7, 70.3)	2.9 (60.5, 68.8)	3.5 (62.2, 68.1)	4.7 (65.0, 68.1)
	Heckman-type		2.7 (58.8, 69.7)	2.0 (59.3, 68.0)	2.2 (61.1, 67.2)	2.1 (62.3, 65.6)
	Reistma$_O$		5.4 (62.1, 72.4)	5.3 (63.4, 70.7)	5.4 (64.7, 69.8)	5.5 (66.1, 68.7)
	Reistma$_P$		0.5 (56.9, 67.3)	-0.1 (57.4, 65.5)	0.1 (59.2, 64.6)	0.0 (60.7, 63.2)
3	Proposed $(\hat{c}_1, \hat{c}_2)$	82.8	1.1 (79.2, 87.4)	0.9 (80.0, 86.6)	0.5 (80.7, 85.4)	0.2 (81.5, 84.6)
	Proposed $(c_1 = 1)$		0.6 (78.6, 87.1)	0.6 (79.1, 86.4)	0.5 (80.8, 85.5)	0.2 (81.6, 84.3)
	Proposed $(c_1 = c_2)$		1.5 (80.2, 87.6)	1.7 (81.6, 87.0)	2.0 (82.8, 86.4)	2.5 (84.2, 86.2)
	Heckman-type		2.5 (81.4, 87.9)	2.7 (82.8, 87.6)	2.9 (84.0, 87.2)	3.0 (85.0, 86.6)
	Reistma$_O$		3.1 (82.2, 88.6)	3.3 (83.7, 88.1)	3.5 (84.7, 87.6)	3.6 (85.7, 87.1)
	Reistma$_P$		-0.2 (78.5, 85.5)	-0.2 (79.9, 85.0)	-0.0 (81.0, 84.4)	0.0 (81.9, 83.7)
4	Proposed $(\hat{c}_1, \hat{c}_2)$	84.6	0.9 (82.4, 88.1)	0.5 (82.5, 87.3)	0.3 (83.1, 86.5)	0.3 (83.9, 85.8)
	Proposed $(c_1 = 1)$		0.6 (82.0, 87.9)	0.4 (82.3, 87.2)	0.3 (83.2, 86.5)	0.1 (83.8, 85.6)
	Proposed $(c_1 = c_2)$		1.1 (82.6, 88.2)	1.0 (83.3, 87.6)	1.2 (84.2, 87.1)	1.3 (85.1, 86.7)
	Heckman-type		1.3 (83.3, 88.3)	1.3 (84.0, 87.8)	1.6 (84.9, 87.5)	1.7 (85.6, 86.9)
	Reistma$_O$		2.4 (84.2, 89.0)	2.3 (84.9, 88.5)	2.4 (85.8, 88.1)	2.5 (86.5, 87.6)
	Reistma$_P$		-0.1 (82.0, 86.8)	-0.1 (82.4, 86.5)	0.0 (83.2, 85.8)	0.0 (84.0, 85.2)
5	Proposed $(\hat{c}_1, \hat{c}_2)$	89.2	1.0 (87.4, 92.2)	1.1 (88.1, 91.9)	0.6 (88.4, 91.1)	0.2 (88.5, 90.2)
	Proposed $(c_1 = 1)$		0.3 (86.2, 91.9)	0.4 (87.1, 91.5)	0.2 (87.6, 90.8)	0.1 (88.3, 90.0)
	Proposed $(c_1 = c_2)$		1.5 (88.2, 92.6)	1.8 (89.3, 92.4)	1.8 (89.9, 92.0)	2.0 (90.7, 91.7)
	Heckman-type		1.8 (88.4, 92.9)	2.1 (89.6, 92.6)	2.1 (90.2, 92.3)	2.2 (90.8, 91.8)
	Reistma$_O$		1.9 (88.5, 92.9)	2.3 (89.9, 92.7)	2.3 (90.4, 92.4)	2.3 (91.0, 91.9)
	Reistma$_P$		-0.4 (86.4, 90.9)	-0.1 (87.4, 90.7)	-0.1 (87.9, 90.2)	-0.0 (88.6, 89.7)
6	Proposed $(\hat{c}_1, \hat{c}_2)$	87.7	1.0 (86.0, 91.0)	1.3 (87.0, 90.8)	1.0 (87.3, 90.0)	0.5 (87.4, 89.1)
	Proposed $(c_1 = 1)$		0.3 (84.6, 90.5)	0.5 (85.8, 90.3)	0.2 (86.2, 89.4)	0.1 (87.0, 88.5)
	Proposed $(c_1 = c_2)$		1.4 (86.8, 91.4)	1.9 (87.8, 91.2)	1.8 (88.4, 90.7)	1.9 (89.0, 90.2)
	Heckman-type		1.5 (86.7, 91.4)	1.9 (87.9, 91.2)	1.8 (88.4, 90.7)	1.9 (89.1, 90.3)
	Reistma$_O$		1.7 (87.1, 91.6)	2.3 (88.2, 91.4)	2.1 (88.8, 91.0)	2.3 (89.4, 90.5)
	Reistma$_P$		-0.2 (85.0, 89.7)	-0.2 (85.9, 89.3)	-0.1 (86.5, 88.8)	-0.1 (87.1, 88.3)

Median with 25th empirical quartile (Q1) and 75th empirical quartile (Q3) and convergence rate (CR) are reported. No. corresponds to the scenario number. S denotes the number of population studies. True denotes the true value of the SAUC. Proposed $(hatc_1, hatc_2)$, Proposed $(c_1 = 1)$, and Proposed $(c_1 = c_2)$ denote the proposed method that estimates (c_1, c_2), correctly specifies $(c_1, c_2) = (1, 0)$, and misspecifies $(c_1, c_2) = (1/sqrt2, 1/sqrt2)$, respectively; Heckman-type denotes the method of Piao et al.; Reitsma$_O$ and Reitsma$_P$ denote the Reitsma model based on N published studies and S population studies, respectively. All the entries are multiplied by 100.

Table 3: Summary of the SAUC estimates under the true selective publication mechanism of $(c_1, c_2) = (0, 1)$

No.		True	$S = 15$	$S = 25$	$S = 50$	$S = 200$
			Median (Q1, Q3)	Median (Q1, Q3)	Median (Q1, Q3)	Median (Q1, Q3)
1	Proposed $(\hat{c}_1, \hat{c}_2)$	56.4	-7.6 (34.5, 62.1)	-7.6 (37.3, 59.9)	-8.3 (38.6, 56.7)	-3.9 (47.6, 56.5)
	Proposed $(c_1 = 0)$		0.2 (44.2, 67.4)	0.6 (47.5, 65.2)	0.1 (50.5, 62.0)	-0.3 (52.9, 59.1)
	Proposed $(c_1 = c_2)$		-8.5 (33.7, 61.4)	-8.5 (37.8, 58.9)	-9.8 (38.6, 55.4)	-8.9 (41.8, 53.8)
	Heckman-type		-2.3 (41.2, 65.7)	-2.3 (43.6, 62.8)	-2.5 (47.1, 60.2)	-2.9 (49.8, 57.4)
	Reistma$_O$		0.6 (44.3, 68.5)	1.2 (47.6, 65.9)	0.7 (50.7, 62.8)	0.3 (53.5, 59.9)
	Reistma$_P$		0.3 (49.5, 63.4)	0.1 (51.3, 60.7)	-0.1 (52.9, 59.6)	-0.1 (54.6, 58.1)
2	Proposed $(\hat{c}_1, \hat{c}_2)$	62.0	-4.4 (44.2, 69.1)	-6.4 (43.8, 64.8)	-6.2 (48.0, 62.7)	-3.0 (54.6, 62.5)
	Proposed $(c_1 = 0)$		1.4 (52.7, 71.8)	0.3 (54.5, 68.8)	0.5 (57.4, 66.8)	-0.0 (59.5, 64.1)
	Proposed $(c_1 = c_2)$		-5.7 (43.5, 68.1)	-7.4 (44.1, 64.3)	-6.4 (47.4, 62.5)	-6.3 (50.3, 60.5)
	Heckman-type		-1.0 (49.1, 70.2)	-2.0 (51.1, 67.1)	-1.9 (53.6, 65.5)	-2.4 (56.2, 62.5)
	Reistma$_O$		2.3 (53.5, 72.6)	1.3 (55.2, 69.7)	1.5 (58.1, 68.0)	1.1 (60.7, 65.3)
	Reistma$_P$		0.5 (56.9, 67.3)	-0.1 (57.4, 65.5)	0.1 (59.2, 64.6)	0.0 (60.7, 63.2)
3	Proposed $(\hat{c}_1, \hat{c}_2)$	82.8	-2.8 (67.5, 86.2)	-3.3 (71.8, 85.2)	-2.8 (74.0, 84.2)	-0.9 (79.5, 83.7)
	Proposed $(c_1 = 0)$		-0.2 (74.4, 87.5)	-0.2 (77.5, 86.6)	-0.0 (79.0, 85.6)	-0.0 (81.3, 84.2)
	Proposed $(c_1 = c_2)$		-4.4 (66.3, 85.7)	-4.2 (70.3, 84.6)	-4.5 (72.8, 83.2)	-3.1 (76.3, 82.4)
	Heckman-type		-1.8 (72.1, 86.9)	-1.9 (74.8, 85.6)	-1.5 (76.8, 84.7)	-1.4 (79.3, 83.0)
	Reistma$_O$		0.1 (73.9, 87.8)	0.1 (77.5, 87.0)	0.4 (79.1, 85.9)	0.4 (81.6, 84.7)
	Reistma$_P$		-0.2 (78.5, 85.5)	-0.2 (79.9, 85.0)	-0.0 (81.0, 84.4)	0.0 (81.9, 83.7)
4	Proposed $(\hat{c}_1, \hat{c}_2)$	84.6	-1.1 (76.3, 87.6)	-1.7 (77.8, 86.4)	-1.4 (79.5, 85.8)	-0.5 (82.7, 85.3)
	Proposed $(c_1 = 0)$		0.4 (79.9, 88.3)	-0.1 (80.9, 87.2)	-0.0 (82.4, 86.7)	0.0 (83.6, 85.6)
	Proposed $(c_1 = c_2)$		-1.5 (75.9, 87.4)	-2.6 (76.2, 86.1)	-1.6 (78.9, 85.7)	-1.2 (81.4, 85.1)
	Heckman-type		-1.0 (77.2, 87.4)	-1.5 (78.5, 86.5)	-1.4 (80.0, 85.6)	-1.4 (81.9, 84.5)
	Reistma$_O$		0.9 (80.1, 88.7)	0.4 (81.5, 87.7)	0.5 (82.9, 87.2)	0.6 (84.1, 86.2)
	Reistma$_P$		-0.1 (82.0, 86.8)	-0.1 (82.4, 86.5)	0.0 (83.2, 85.8)	0.0 (84.0, 85.2)
5	Proposed $(\hat{c}_1, \hat{c}_2)$	89.2	-2.1 (82.3, 89.9)	-1.4 (84.8, 90.0)	-0.9 (86.3, 89.7)	-0.2 (88.1, 89.6)
	Proposed $(c_1 = 0)$		-0.9 (85.2, 90.7)	-0.2 (86.6, 90.7)	-0.2 (87.6, 90.2)	-0.0 (88.5, 89.7)
	Proposed $(c_1 = c_2)$		-2.3 (82.6, 89.8)	-1.5 (84.8, 89.8)	-1.3 (86.0, 89.5)	-0.6 (87.5, 89.3)
	Heckman-type		-1.8 (83.9, 90.1)	-1.4 (85.2, 90.0)	-1.4 (86.2, 89.3)	-1.3 (87.1, 88.7)
	Reistma$_O$		-0.9 (85.0, 90.7)	-0.2 (86.8, 90.8)	-0.0 (87.8, 90.4)	0.1 (88.7, 89.9)
	Reistma$_P$		-0.4 (86.4, 90.9)	-0.1 (87.4, 90.7)	-0.1 (87.9, 90.2)	-0.0 (88.6, 89.7)
6	Proposed $(\hat{c}_1, \hat{c}_2)$	87.7	-1.4 (82.4, 89.0)	-1.3 (84.2, 88.6)	-0.6 (85.3, 88.5)	-0.2 (86.7, 88.2)
	Proposed $(c_1 = 0)$		-0.6 (84.3, 89.6)	-0.3 (85.5, 89.3)	-0.1 (86.3, 88.9)	-0.1 (87.0, 88.3)
	Proposed $(c_1 = c_2)$		-1.6 (82.7, 89.0)	-1.1 (84.1, 88.7)	-0.8 (85.2, 88.4)	-0.3 (86.7, 88.2)
	Heckman-type		-1.9 (82.8, 88.6)	-1.5 (83.7, 88.2)	-1.6 (84.6, 87.7)	-1.5 (85.4, 87.0)
	Reistma$_O$		-0.5 (84.4, 89.6)	-0.1 (85.7, 89.4)	0.2 (86.6, 89.1)	0.2 (87.4, 88.5)
	Reistma$_P$		-0.2 (85.0, 89.7)	-0.2 (85.9, 89.3)	-0.1 (86.5, 88.8)	-0.1 (87.1, 88.3)

Median with 25th empirical quartile (Q1) and 75th empirical quartile (Q3) and convergence rate (CR) are reported. No. corresponds to the scenario number. S denotes the number of the population studies. True denotes the the true value of the SAUC. Proposed $(hatc_1, hatc_2)$, Proposed $(c_1 = 1)$, and Proposed $(c_1 = c_2)$ denote the proposed method that estimates (c_1, c_2), correctly specifies $(c_1, c_2) = (0, 1)$, and misspecifies $(c_1, c_2) = (1/sqrt2, 1/sqrt2)$, respectively; Heckman-type denotes the method of Piao et al.; Reitsma$_O$ and Reitsma$_P$ denote the Reitsma model based on N published studies and S population studies, respectively. All the entries are multiplied by 100.